# UNIT III

## PERFORMING RCM ANALYSIS

## MODULE 6

## AGE EXPLORATION TASKS

# DEVELOPING AGE EXPLORATION TASKS

- Introduction
- AE Task Development
- AE Task Elements
- Review and Summary

# DEVELOPING AGE EXPLORATION TASKS

Module Introduction

**Objective:**

This module will provide information on developing Age Exploration tasks.

# DEVELOPING AGE EXPLORATION TASKS

Description:

AE Task Development

**Systematic approach for collecting and analyzing data to:**

- **Refine RCM analysis assumptions and data**
- **Optimize PM tasks**

**Age Exploration should be targeted to specific failure modes**

# DEVELOPING AGE EXPLORATION TASKS

## *Impact On Maintenance:*

- AE is not part of scheduled PM, but does impact the maintenance effort
- Impact may be felt in increased:
  - burden/disruption to the maintenance workforce
  - equipment downtime
  - demand on maintenance resources

# DEVELOPING AGE EXPLORATION TASKS

## *Impact On Maintenance:*

## AE Task Development

**Because of these potential impacts, AE tasks should be designed with as little disruption to the maintenance program as possible.**

**Accomplish AE in concert with scheduled PM, if possible**

**Use existing:**

- **Tools**
- **Manpower**
- **Skills**

**Eliminate:**

**Peculiar support equipment**

**Specialized technical training**

## *Safety Consequences:*

## AE Task Development

**Collecting failure data for safety failure modes must be performed in a way that does not allow functional failure to occur.**

- **Laboratory environment**
- **Analytical Methods**
- **Controlled operation**

# DEVELOPING AGE EXPLORATION TASKS

***Safety Consequences:***

**AE Task Development**

**Using AE to establish life limits . . .**

- **Test a sample of items to failure in laboratory**
- **The test would be an AE task**

# DEVELOPING AGE EXPLORATION TASKS

***Safety Consequences:***

**AE Task Development**

**Using AE to monitor degradation . . .**

- **Set potential and functional failure limits**

  **Note: Potential failure limit must be conservative enough to prevent functional failures from occurring**

- **Collect in-service degradation data**
- **Remove item when potential failure condition is discovered**
- **Send to laboratory to continue data collection in a safe environment**

# DEVELOPING AGE EXPLORATION TASKS

***Non-Safety Consequences:***

**Using AE to collect data for non-safety issues . . .**

- **Loss may have impact on mission/economics**
- **Data can be collected while equipment is in operational environment**

  **Note: Items can be allowed to fail in-service since safety not affected as long as impact on mission or economics is acceptable**

- **Laboratory testing usually not necessary**
- **AE task may be just monitoring existing data collection systems**

# DEVELOPING AGE EXPLORATION TASKS

*Definitions:*

AE Task Elements

- **Task Description: Thorough description of task, directed toward specific Failure Mode**
- **Task Interval: Frequency that task is performed**
- **Initial Inspection: Time which first AE task is performed on an item**

# DEVELOPING AGE EXPLORATION TASKS

*Definitions:*

AE Task Elements

- **Cost of One Inspection: Cost of performing one AE inspection; include man-hours and material cost, but not repair cost**
- **Task Cost/Unit Op Time: Average cost of AE requirement per unit operating time of entire population of items**
- **Sample Quantity: Number of items that will be inspected or tested by AE task**
  - **Sample quantity should provide a statistically valid sample**

# DEVELOPING AGE EXPLORATION TASKS

*Definitions :*

AE Task Elements

- **Sample % : Sample quantity divided by number of items in total population**
- **Task Duration: Length of time, e.g., cycles, operating hours, task will be performed on each item in sample population**
- **Man-hours: Average man-hours required to complete one AE task**

# DEVELOPING AGE EXPLORATION TASKS

Definitions:

AE Task Elements

- **Material Cost: Average cost of materials required to perform one AE task. Does not include repair cost.**

# DEVELOPING AGE EXPLORATION TASKS

Review and Summary

**Module Objective**

- Provide detailed information for developing an Age Exploration task.

**Introduction**

- Learning Objectives

**AE Task Development**

- Safety Consequences
- Non-Safety Consequences

**AE Task Elements**

- Definitions



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# End of Module

up next.....

Selecting Task or Other Options